



# CITY OF LOS ANGELES ELECTRIC VEHICLE STRATEGY

## Overview

SoCal EV 101 – South Bay Workshop

December 9, 2010

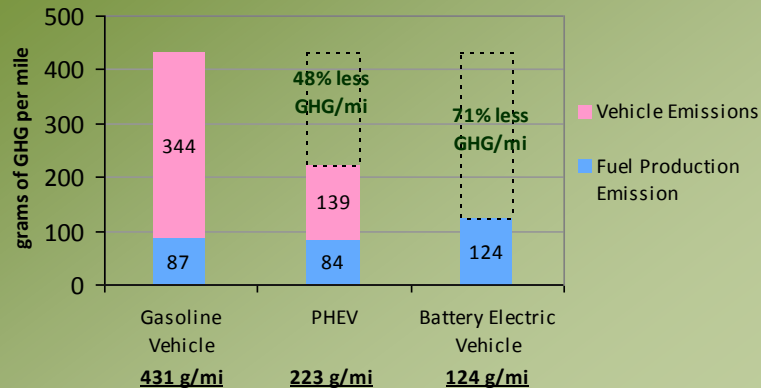
# Benefits of Plug-In Electric Vehicles



## Climate Change

### GHG Reduction

- Transportation accounts for 37% of GHG emissions in California.
- NRDC and EPRI found that significant GHG reductions are possible with plug-in hybrids, even with highly carbon intense power sources.



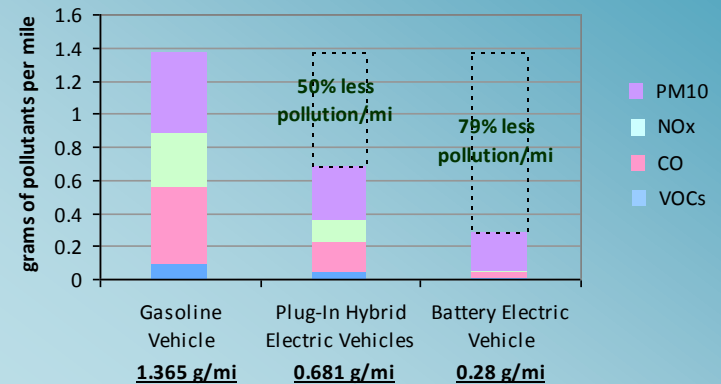
Source: "Full Fuel Cycle Assessment: Well-to-Wheels Energy Inputs, Emissions, and Water Impacts", California Energy Commission, August 2007. Assumes CA avg. energy mix; DWP nos. may be higher.



## Public Health

### Air Pollution Reduction

- LA remains a federal non-attainment zone. Electrification of light-duty vehicles can produce up to 79% less air pollution per mile than gas vehicles.



Source: "Full Fuel Cycle Assessment: Well-to-Wheels Energy Inputs, Emissions, and Water Impacts", California Energy Commission, August 2007. Assumes CA avg. energy mix; DWP nos. may be higher.



## The Electric Mile is Cheaper

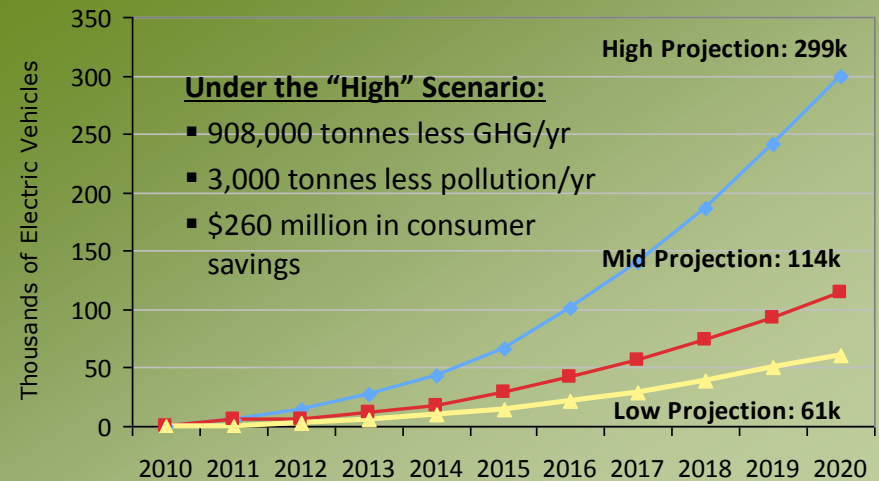
### Lower Operating Costs

- The cost of running an electric vehicle is lower than that of a traditional gasoline vehicle. This could mean better overall consumer economics and lower fleet operating costs.

### Gasoline Vehicle v. Electric Vehicle

Gas Price (\$/gal)	\$3.00	\$0.12	Electricity Price (\$/kWh)
Avg. Efficiency (mi/gal)	30	3	Avg. Efficiency (mi/kWh)
\$ per mile	\$0.10	\$0.04	\$ per mile
<b>Cost of Avg. Day's Worth of Driving (40 mi)</b>	<b>\$4.00</b>	<b>\$1.60</b>	<b>Cost of Avg. Day's Worth of Driving (40 mi)</b>

## Reductions from EV Adoption



Source: SCE projection of EV penetration in their territory scaled down to City of LA.

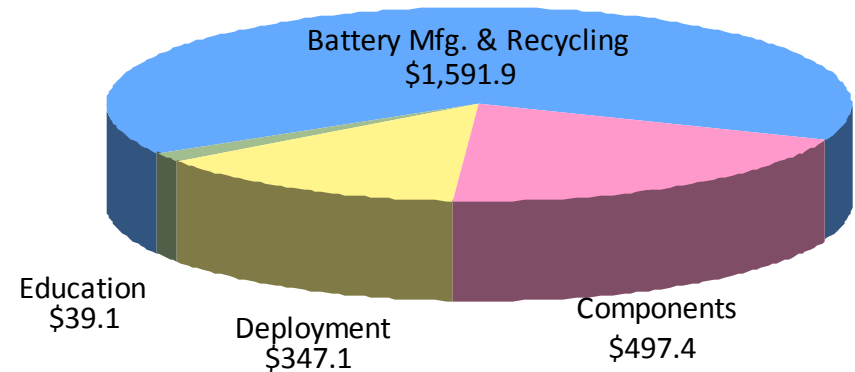
# Government Support for Large-Scale EV Adoption

## Federal Investment

- **Allocated \$2.4b to advanced battery and electric drive projects** under the American Recovery & Reinvestment Act in August 2009. Also, ARRA provides tax-credits for electric vehicle purchases.
- **Loaned \$8.5b under the Advance Technology Vehicle Manufacturing Program** (est. by the Energy Independence and Security Act); loans went to Ford (\$5.9b), Nissan (\$1.6b), Tesla (\$465m), and Fisker (\$529m).
- **Two federally funded projects plan to deploy in Los Angeles, ECTotality (\$99m) and Coulomb (\$15m)**

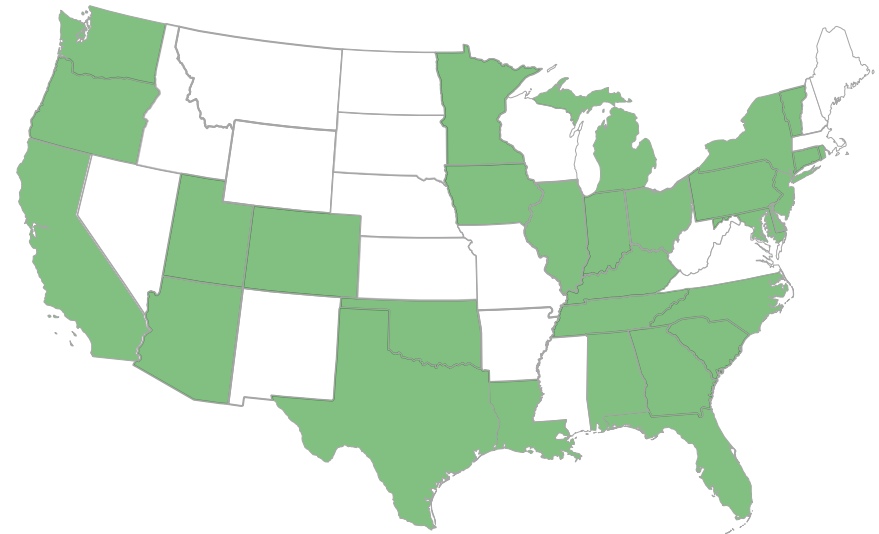
## ARRA Funding for Advanced Battery and Electric Drive Projects (\$M)

**TOTAL = \$2.475 BILLION**



## State Incentives & CA Regulations

- 33 states (plus DC) offer purchase, use, and/or manufacturing incentives for EVs.
- California offers infrastructure funds (through the CEC), a vehicle purchase rebate (through CARB) of up to \$5,000, and a new sticker program to allow single-occupant EVs in HOV lanes.
- California ARB is revising the Zero Emission Vehicle (ZEV) mandate to include GHG reduction; and the Low Carbon Fuel Standard (LCFS) will mandate 10% reduction in avg. fuel carbon intensity for all fuels dist. in CA by 2020.



# Electric Vehicles Coming Soon to US Markets

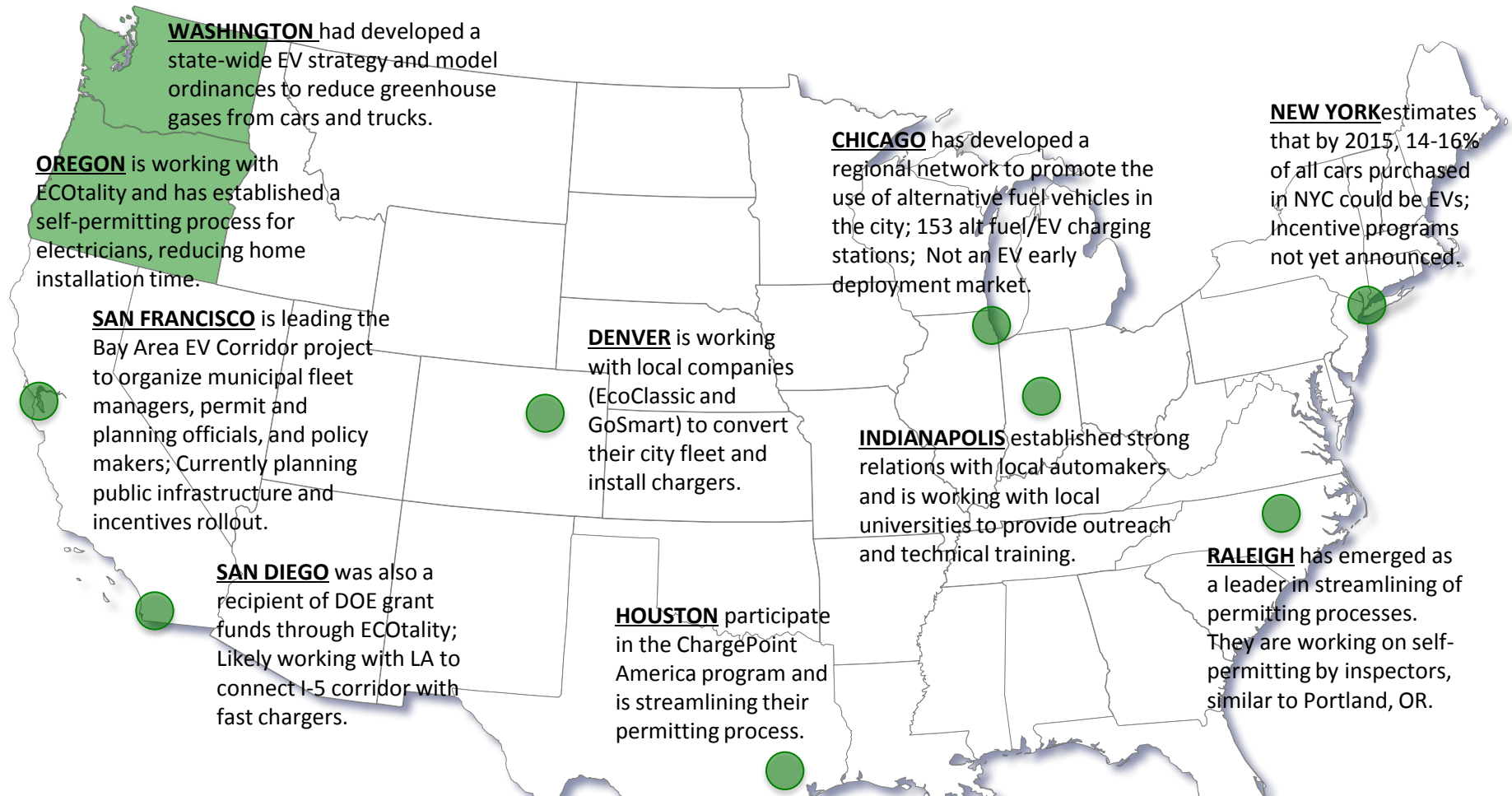
Vehicle manufacturers are preparing for large-scale EV deployment

	Mitsubishi i-MiEV	Tesla Roadster	Chevrolet Volt	Daimler smart ED	Nissan LEAF	BYD E6	Coda Sedan Electric	Ford Focus Electric
								
Type	BEV	BEV	PHEV	BEV	BEV	BEV	BEV	BEV
Release	2009	2009	2010	2010	2010	2011	2011	2011
Global Production Volume	5,000 in US and Europe by 2011; 30,000 globally by 2012	3,400 by end of 2011	10,000 by 2011; 60,000 by 2012	1,500 by 2011; 10,000/yr starting 2012	20,000 by 2010	100 global by 2010	14,000 by 2011 (US Only)	10,000 by 2011
US Allocation	data unavailable	data unavailable	10,000 by 2011; 45,000 by 2012	250 by 2011	13,000 by 2010	data unavailable	14,000 by 2011	data unavailable
Early US Markets	Oregon	Los Angeles Boulder Boston Chicago Dania Beach New York City Newport Beach San Diego Seattle Silicon Valley	California Austin New York City Washington D.C.	Los Angeles Austin Detroit Indianapolis Orlando Portland San Jose Washington D.C.	California Arizona Oregon Tennessee Washington	Los Angeles	Los Angeles	tbd
Price	47500	109000	41000	32000	32800	~\$43,000	45000	30000
Range (AE+Gas)	100 mi	245 mi	40+380 mi	80 mi	100 mi	186 mi	90-120 mi	100 mi
LV II Charge Time	7 hrs	3.5 hrs	4 hrs	8 hours	6-8 hours	6 hours	6 hours	6 hours
Battery Size	16 kWh	56 kWh	16 kWh	16.5 kWh	24 kWh	21k Wh	33.8 kWh	23 kWh
EVSE Partner		ClipperCreek	SPX	Coulomb Technologies	Aeronvironment / ECOtality		Sears	




# States & Cities with Electric Vehicle Readiness Plans

Vehicle manufacturers are preparing for large-scale EV deployment



## International C40 Cities



**LONDON** – Target of 25,000 charge-points in London by 2015; 1,000 EVs in GLA fleet by 2015; Congestion Charge waived for EVs; 2012 Olympic Games as catalyst.

**SEOUL** – By 2020, all Taxi, Bus and Official Vehicle – 50% EV, 50% hybrid; By 2020, convert 6% of private vehicles to EV/Hybrid; 110,000 EVSE installed across city by 2020.

**HONG KONG** – Waiver of registration tax; Reduced annual vehicle license fee; tax deduction for capitol expenditure.

**TORONTO** – Target of at least 300 electric vehicles on the road in the Greater Toronto Area by 2012; Establishment of regional procurement collaborative.

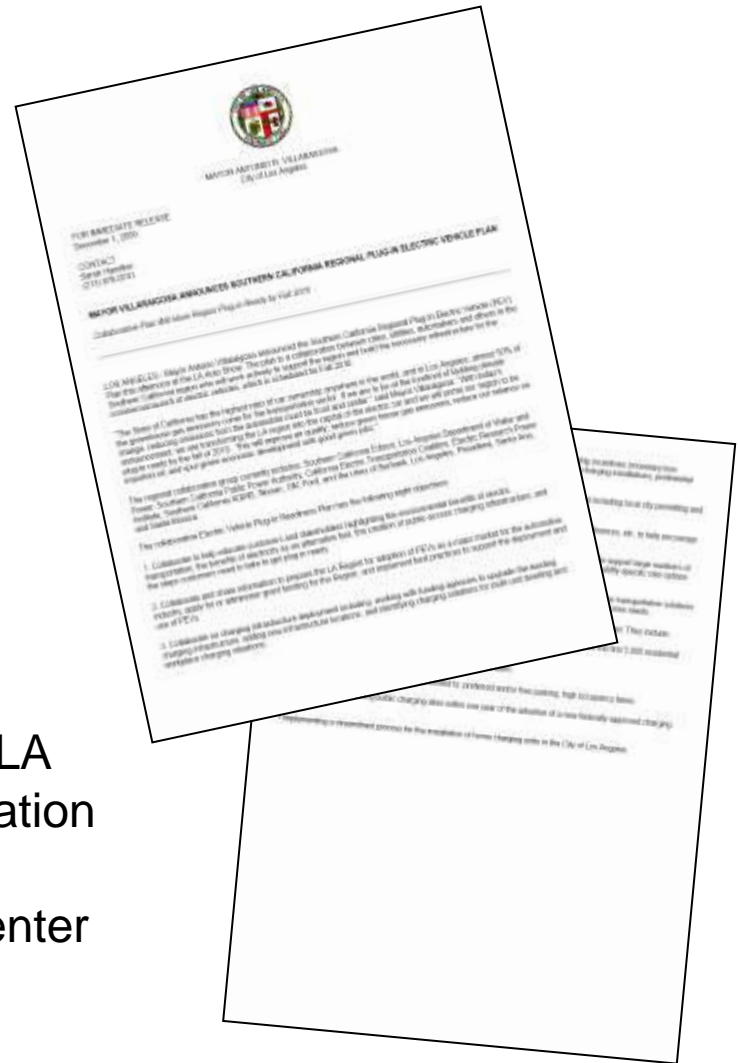
# Los Angeles EV Readiness Plan:

## Plan Announced: December 1, 2009

- Education and Outreach
- Information Sharing
- Regional Collaboration
- Incentives
- Infrastructure
- Permit & Inspection Streamlining

## Activity

- Formation of Regional Collaborative
- Joined C40 EV Network
- Grant-Funded Infrastructure Projects in LA
- LADWP & LA Building & Safety Coordination
- First SoCal EV “EV101” Workshop
- Public Installations: LAX, Convention Center



# Local Strategies for Promoting EV Adoption

## Components of Los Angeles' EV Strategy

Strategy	Initiatives
<b>I. Providing Incentives</b>  <i>Offer incentives and benefits to EV consumers to stimulate demand.</i>	<ul style="list-style-type: none"><li>• <b>Discounted off-peak EV electricity rate</b> – LADWP will provide a 2.5 cent discount electricity rate during off-peak hours.</li><li>• <b>EV Incentives Study</b> – UCLA to assess other potential incentive offerings by the City and LADWP.</li><li>• <b>Residential EVSE Incentive (in development)</b> – LADWP is developing a program to subsidize the purchase and installation of EVSE for early adopters.</li></ul>
<b>II. Build EV Infrastructure</b>  <i>Develop home, workplace, and public access EV infrastructure to support widespread EV adoption.</i>	<ul style="list-style-type: none"><li>• <b>Streamline Home Charger Install</b> – Improve coordination between the LADWP and Building &amp; Safety. Online permitting and 24hr inspection. Goal of 7 day installation process (barring major upgrades).</li><li>• <b>Expanded public charging infrastructure</b> – Support efforts by the utilities to upgrade and expand infrastructure, including development of a long-term infrastructure plan with regional partners (SCAG, MTA, and AQMD).</li><li>• <b>EV Ready Building Codes</b> – Establish EV-ready building codes and encourage other cities in the region to do the same.</li></ul>
<b>III. Education, Outreach, &amp; Demonstrations</b>  <i>Exemplary action on the part of the City &amp; Region in areas of EV policy, programs, education and advocacy.</i>	<ul style="list-style-type: none"><li>• <b>Regional Action through SoCal EV</b> – Collaborate with public and private sector partners on regional education &amp; outreach, infrastructure development, and joint advocacy.</li><li>• <b>EV Demonstrations</b> – Together with private sector partners, pursue EV fleet demonstrations and pilot EV car sharing program in parts of the City.</li></ul>